## *ANALYSIS CONSIDERATIONS*

**Favorable and unfavorable variances should be carefully evaluated. The program analyst should examine and understand the reasons for underruns as well as overruns because they could be masking a serious problem.**

### Establishing Thresholds for Reporting and Analysis

- **Establish threshold reporting based on risk and tailored to WBS by specific dollar amount and/or variance percentage**
- **Identification of threshold reporting should also consider program phase, risk and WBS criticality**

### Good Variance Analysis Identifies

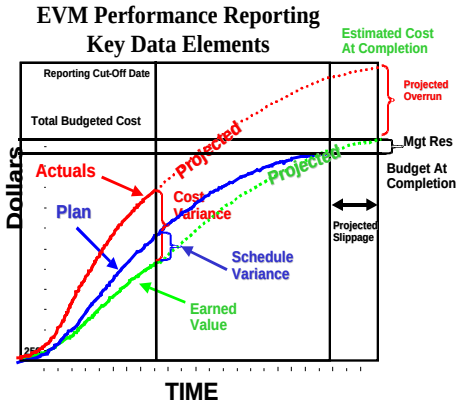
- **The Problem**
- **Cause of the Problem**
- **Impact to the Program (Cost, Schedule and Technical)**
- **Corrective Action**
- **Get well date**

### Areas to Address

- **Poor initial planning or estimating**
- **Technical breakthroughs or problems**
- **Cost (or usage) of labor, material, or Other Direct Costs higher or lower than planned**
- **Inflation and new labor contracts**
- **Front-end loading**

### Reconciliation Analysis

- **Other budget/funding documentation**
- **Labor resource planning documentation**




**NASA EVM Website:**
**http://evm.nasa.gov**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# EARNED VALUE MANAGEMENT (EVM)

## The KEY to Integrated Program Management

## Do You Know The Health of Your Program?

## What is EVM?

- EVM is an *integrated management control system* for assessing, understanding and quantifying what a contractor or field activity is achieving with program dollars
  - *Integrates* technical, cost, schedule, with risk management
  - *Allows objective assessment and quantification of* current project performance
  - Helps predict future performance based on trends.

EVM provides project management with objective, accurate and timely data for effective decision making

### *POLICY REFERENCES*

OMB Circular A-11, Part 3

The NPG 7120.5A Program/Project Management Processes and Requirements

NPD 9501.3, Effective Date of February 18, 1997

Industry Guidelines, ANSI/EIA-748-1998 Standard for EVM Systems

## EVM Acronyms

| | |
|---|---|
| NCC | Negotiated Contract Cost |
| CBB | Contract Budget Base |
| UB | Undistributed Budget |
| MR | Management Reserve |
| TAB | Total Allocated Budget |
| PMB | Performance Measurement Baseline |
| BCWS | Budgeted Cost for Work Scheduled (The Plan) |
| ACWP | Actual Cost of Work Performed ("Actuals" or "Cost") |
| BCWP | Budgeted Cost for Work Performed (EARNED VALUE) |
| BAC | Budget At Completion |
| EAC | Estimate At Completion |
| AUW | Authorized Unpriced Work |
| OTB | Over Target Baseline |
| CA | Control Account/Cost Account |
| WP | Work Package |
| PP | Planning Package |
| SPP | Summary Planning Package |
| WBS | Work Breakdown Structure |

## EVM Data Analysis

| Term | Formula |
|---|---|
| Cost Variance | CV = BCWP-ACWP |
| Schedule Variance | SV = BCWP-BCWS |
| Budget Remaining | BR = BAC-ACWPcum |
| Work Remaining | BCWR = BAC-BCWPcum |
| Variance at Completion | VAC = BAC-EAC |
| Schedule Variance Percentage | SV% = SV/BCWSx100 |
| Cost Variance Percentage | CV% = CV/BCWPx100 |
| Variance at Completion Percentage | VAC% = VAC/BACx100 |
| $\text{Percent Complete}_{BAC}$ | $\text{Percent Complete}_{BAC}$ = BCWPcum/BACx100 |
| $\text{Percent Spent}_{BAC}$ | $\text{Percent Spent}_{BAC}$ = ACWPcum/BACx100 |
| $\text{Percent Planned}_{BAC}$ | $\text{Percent Planned}_{BAC}$ = BCWScum/BACx100 |
| Cost Performance Index (Efficiency) | $CPI_e$ = BCWP/ACWP |
| Schedule Performance Index (Efficiency) | $SPI_e$ = BCWP/BCWS |
| To-Complete Performance Index | TCPI = Work Remaining/Budget Remaining |
| To-Complete Performance Index | TCPI = BAC-BCWPcum)/(BAC-ACWPcum) |